

**MULTI-PASS EXHAUST GAS
RECIRCULATION COOLER**

ABSTRACT OF THE DISCLOSURE

5 An apparatus and method for cooling hot fluids, especially exhaust gases,
with a multi-pass cooler core. The cooler core is particularly useful for cooling
exhaust gases flowing in an exhaust gas recirculation (EGR) system or regime in
operative association with an internal combustion engine, such as a diesel engine.
Cooled gases are recirculated to the engine input to help reduce noxious exhaust
10 emissions. The invention utilizes unequal areas-in-flow between the first exhaust
pass through the core and the second and subsequent passes through the core. The
first pass through the core features an area-in-flow comparatively larger than the
area-in-flow of the second pass. The difference in areas-in-flow between passes
influences gas velocities to reduce fouling, despite changes in exhaust gas
15 temperature between passes through the core.